IN THE CLAIMS

1. (original) A power source for supplying electrical power to a driving motor, said driving motor drawing electrical power at different rates, the power source comprising:

a first rechargeable energy battery having a first total impedance for storing electrical energy and providing electrical power to the electrical motor at a first range of power rates;

a second rechargeable power battery having a second total impedance, less than the first total impedance, for storing electrical energy and providing electrical power to the electrical motor at a second range of power rates;

wherein electrical energy stored in the energy battery is provided to the driving motor in combination with electrical energy stored in the power battery; and

wherein the energy battery substantially continuously recharges the power battery with any excess power.

2. (original) The power source as defined in claim 1 further comprising a battery controller capable of controlling the substantially continuous recharging of the power battery with electrical energy from the energy battery not required by the driving motor.

3. (original) The power source as defined in claim 2 wherein the battery controller controls the substantially continuous recharging of the power battery by controlling the electrical energy passing through a first connection from the energy battery to the power battery.

4. (original) The power source as defined in claim 2 wherein the battery controller utilizes inherent control of the energy battery and power battery, such that the battery controller initially connects the power battery and energy battery in parallel.

5. (original) The power source as defined in claim 4 wherein the controller initially connects each of the power battery, energy battery and electrical motor in parallel.

6. (original) The power source as defined in claim 1 wherein the power battery and energy battery have a range of overlapping nominal voltages.

7. (original) The power source as defined in claim 6 wherein the power battery and energy battery are connected in parallel with the driving motor.

8. (original) The power source as defined in claim 7 wherein the power battery consists of at least one bank of 8 lead acid batteries in series, each lead acid battery having a nominal voltage of 10.5 volts to 13 volts and the energy battery consists of at least one bank of 27 lithium ion cells connected in series, each lithium ion cell having a nominal voltage of 3 volts to 4.2 volts.

9. (original) The power source as defined in claim 1 wherein the second total impedance is between 10% to 60% of the first total impedance.

10. (original) The power source as defined in claim 9 wherein the second total impedance is between 35% to 50% of the first total impedance.

11. (original) The power source as defined in claim 4 further comprising a switch between the energy battery and the power battery; and

wherein the controller initially connects the power battery to the energy battery in parallel by controlling the switch along the first connection.

12. (original) The power source as defined in claim 1 wherein the energy battery is a lithium based battery selected from the group consisting of non-aqueous lithium-ion batteries, lithium air batteries and polymer lithium ion batteries, and, the power battery is a lead-acid battery.

13. (original) The power source as defined in claim 1 wherein the energy battery is a non-aqueous polymer lithium battery pack.

14. (original) The power source as defined in claim 13 wherein the power source has a casing and a portion of the casing is occupied by the non-aqueous polymer lithium battery pack.

15. (original) The power source as defined in claim 5 wherein the driving motor drives a vehicle within which the power battery and energy battery are contained and, wherein the controller can be contained within or removed from the vehicle.

16. (original) An energy storage device for storing electrical energy to be delivered to an electrical load, said energy storage device comprising:

a rechargeable battery having a first energy density and electrically connectable to an external power source;

a rechargeable electrical device having a second energy density, less than the first energy density, said second battery being electrically connectable to the first battery and electrically connectable to the load;

wherein, during operation, the rechargeable electrical device is connected in parallel to each of the load and the battery, and wherein the rechargeable electrical device supplies electrical energy to the load while the battery substantially continuously recharges the rechargeable electrical device and supplies electrical energy to the load; and

wherein the battery is periodically connected to the external source for recharging as required.

17. (original) The energy storage device as defined in claim 16 wherein the rechargeable battery is selected from the group consisting of non-aqueous lithium-ion batteries, polymer lithium ion batteries and sodium-sulfur batteries.

18. (original) The energy storage device as defined in claim 16 wherein the rechargeable electrical device is selected from the group consisting of high-rate lithium batteries, lithium-ion batteries, high rate nickel aqueous batteries, lead-acid batteries, nickel alloy hybrid batteries, nickel metal batteries and nickel cadmium batteries.

19. (original) The energy storage device as defined in claim 16 wherein the rechargeable battery comprises an energy rechargeable battery and the rechargeable electrical device comprises a power rechargeable battery for substantially continuously recharging the energy rechargeable battery.

20. (original) The energy storage device as defined in claim 16 wherein the rechargeable battery having a first total impedance and the rechargeable electrical device having a second total impedance less than the first total impedance.

21. (original) The energy storage device as defined in claim 20 wherein the second total impedance is between 10% to 60% of the first total impedance.

22. (original) The energy storage device as defined in claim 19 wherein the energy battery is a lithium based battery and the power battery is a lead-acid battery.

23. (original) The energy storage device as defined in claim 19 wherein the electrical energy stored in the energy battery is supplied to the electrical load at a first range of power rates and electrical energy stored in the power battery is supplied to the electrical load at a second range of power rates, the second range of power rates being greater than the first range of power rates.

24. (original) The electrical energy storage device as defined in claim 23 further comprising a battery controller for initially connecting the power battery, energy battery and load in parallel; and

wherein the electrical energy from the energy battery and power battery are combined and provided at a range of power rates which include a sum of the first range of power rates and the second range of power rates.

25. (original) The electrical energy storage device as defined in claim 19 wherein the power battery is electrically connectable to an external source for recharging; and

wherein the power battery is electrically connectable to the external source for recharging when the energy battery requires recharging.

26. (original) The electrical energy storage device as defined in claim 25 wherein the energy battery and the power battery are connected to the external source through a recharger.

27. (original) The electrical energy storage device as defined in claim 19 wherein the electrical load is a driving motor in a vehicle within which the energy battery and power battery are contained; and

wherein the power battery is located in the vehicle nearer to the electrical load than the energy battery.

28. (original) A method for storing electrical energy for an electrical load drawing electrical power at different rates, said method comprising:

charging a rechargeable energy battery having a first total impedance;

charging a rechargeable power battery having a second total impedance, less than the first total impedance;

supplying electrical energy from the energy battery and the power battery to the electrical load;

substantially continuously recharging the power battery from the energy battery with electrical energy not required by the electrical load.

29. (original) A method as defined in claim 28 further comprising: connecting the energy battery in parallel with the power battery.

30. (original) A method as defined in claim 28 wherein the electrical load is a driving motor in a vehicle, and, the rechargeable energy battery and the rechargeable power battery are contained in the vehicle with the power battery located nearer the driving motor than the energy battery.

31. (original) A method as defined in claim 30 further comprising:

periodically recharging the energy battery, from an external fixed electrical source, when the energy capacity of the energy battery falls below a threshold.

32. (original) A method as defined in claim 28 wherein the rechargeable energy battery is selected from the group consisting of non-aqueous lithium-ion batteries, lithium air batteries, polymer lithium-ion batteries and sodium-sulfur batteries; and

wherein the rechargeable power battery is selected from the group consisting of lead-acid batteries, high-rate lithium batteries, lithium-ion batteries, high-rate nickel aqueous batteries, nickel metal batteries, nickel alloy hybrid bearing batteries and nickel cadmium batteries.

33. (new) A power source system for providing power to a load, the system comprising:

a first battery having a first energy density, with the first battery being rechargeable;

a second battery having a second energy density, with the second energy density being greater than the first energy density; and

a battery connection device structured and located to electrically connect the first battery, the second battery and the load to each other so that:

the first battery and second battery can both supply electrical power to the load through the battery connection device;

the second battery can recharge the first battery through the battery connection device;

the voltage drop across the first battery and second battery is substantially equal when the first battery and the second battery are supplying power to the load through the battery connection device.

34. (new) The system of claim 33 wherein the first battery and the second battery are structured so that the voltage across the second battery is somewhat higher than the voltage across the first battery, even when the second battery is at an end of its useful capacity.

35. (new) The system of claim 33 further comprising a vehicle housing with the first battery, the second battery and the battery connection device being at least substantially mechanically fixed with respect to the vehicle housing.

36. (new) The system of claim 33 wherein the battery connection device comprises electrical connectors forming a parallel electrical connection between the first battery, the second battery and the load.

37. (new) The system of claim 33 wherein the battery connection further comprises at least one switch for allowing at least some of the electrical connections between the first battery, the second battery and the load to be selectively connected and disconnected.

38. (new) The system of claim 35 further comprising a switch control device structured and located to control the at least one switch.

39. (new) The system of claim 38 wherein the switch controller controls the at least one switch to improve efficiency.

40. (new) The system of claim 38 wherein the switch controller controls the at least one switch to prevent damage to at least one of the batteries.

41. (new) A power source system for providing power to a load, the system comprising:

a first battery having a first energy density, with the first battery being rechargeable;

a second battery having a second energy density, with the second energy density being greater than the first energy density; and

a battery connection device structured and located to electrically connect the first battery, the second battery and the load to each other so that the load will at least sometimes simultaneously draw current from both the first battery and the second battery.

42. (new) The system of claim 41 further comprising a vehicle housing with the first battery, the second battery and the battery connection device being at least substantially mechanically fixed with respect to the vehicle housing.

43. (new) The system of claim 41 wherein the battery connection device comprises electrical connectors forming a parallel electrical connection between the first battery, the second battery and the load.

44. (new ) The system of claim 41 wherein:

the first battery comprises at least two separate battery housings electrically connected in series; and

the second battery comprises at least two separate battery housings electrically connected in series.

45. (new) The system of claim 41 wherein:

the first battery is structured to have a first total impedance;

the second battery is structured to have a second total impedance; and

The first total impedance is less than the second total impedance so that the first battery will generally become discharged faster.

46. (new) The system of claim 45 wherein the first impedance is between 10% to 60% of the second impedance.

47. (new) A vehicle comprising:

a vehicle housing;

a motor structured and located so that operation of the motor can drive the vehicle into motion;

a first battery having a first energy density, with the first battery being rechargeable;

a second battery having a second energy density, with the second energy density being greater than the first energy density; and

a battery connection device structured and located to electrically connect at least the first battery to the motor and the second battery;

wherein the motor, the first battery and the second battery are all fixed to the vehicle housing so that the first battery is spatially proximate to the motor and the second battery is spatially remote from the motor.

48. (new) The vehicle of claim 47 wherein:

the first battery comprises at least two separate battery housings electrically connected in series; and

the second battery comprises at least two separate battery housings electrically connected in series.

49. (new) The vehicle of claim 47 wherein the second battery is a lithium ion battery.

50. (new) The system of claim 42 wherein:

the vehicle requires a burst of power to start from a stationary position; and

a remaining capacity of the first battery decreases in a step corresponding to the required burst of power.